WHAT IS CLAIMED IS:

1. An implantable amplification system comprising a biocompatible polymer matrix and amplification components which produce a polyhydroxylated analyte signal upon interrogation by an optical system, wherein said amplification components do not require resonance energy transfer for production of said signal.

2. An implantable amplification system in accordance with claim 1, wherein said amplification components comprise glucose oxidase, horseradish peroxidase and parahydroxyphenylacetic acid.

3. An implantable amplification system in accordance with claim 2, wherein said amplification components comprise glucose oxidase, horseradish peroxidase, parahydroxyphenylacetic acid and a ruthenium porphyrin complex capable of decomposing a parahydroxyphenylacetic acid dimer.

4. An implantable amplification system in accordance with claim 1, wherein said amplification components comprise glucose oxidase and luminol.

5. An implantable amplification system in accordance with claim 1, wherein said amplification components comprise a lectin labeled with a dye selected from the group consisting of fluorescein and rhodamine.

6. An implantable amplification system in accordance with claim 5, wherein said lectin is concanavalin A and said dye is rhodamine.

7. An implantable amplification system in accordance with claim 1, wherein said amplification components comprise an arylboronic acid moiety, an arylgermanic acid moiety or an arylarsenic acid moiety attached to an amine-functionalized dye molecule.

8. An implantable amplification system in accordance with claim 1, wherein said amplification components comprise an arylboronic acid moiety attached to an amine-

functionalized dye molecule.

9. An implantable amplification system in accordance with claim 8, wherein said dye molecule is selected from the group consisting of anthracene and fluorescein.

10. An implantable amplification system in accordance with claim 8, wherein said arylboronic acid moiety attached to an amine-functionalized dye molecule is entrapped within said biocompatible matrix.

11. An implantable amplification system in accordance with claim 1, wherein said biocompatible polymer matrix comprises a polymer prepared from a reaction mixture of:

(a) a diisocyanate, said diisocyanate comprising about 50 mol% of the reactants in said mixture;

(b) a hydrophilic polymer which is a member selected from the group consisting of a hydrophilic polymer diol, a hydrophilic polymer diamine and combinations thereof;

(c) a siloxane polymer having amino, hydroxyl or carboxylic acid functional groups at the chain termini.

12. An implantable amplification system in accordance with claim 11, wherein said biocompatible matrix further comprises an outer hydrogel coating, wherein said hydrogel is formed from a reaction mixture of:

(a) a diisocyanate, said diisocyanate comprising about 50 mol% of the reactants in said mixture;

(b) a hydrophilic polymer which is a member selected from the group consisting of a hydrophilic polymer diol, a hydrophilic polymer diamine and combinations thereof; and optionally;

(c) a chain extender,

said hydrogel having a water pickup of from about 120% to about 400% by weight.

13. A method for quantifying the amount of a polyhydroxylated analyte in an individual, said method comprising:

(a) interrogating a subcutaneously implanted amplification system of claim 1 with an energy source to provide an excited amplification system which produces an energy emission corresponding to said amount of said polyhydroxylated analyte; and

(b) detecting said emission to thereby quantify the amount of said polyhydroxylated analyte in said individual.

14. A method in accordance with claim 13, wherein said energy source is a laser diode.

15. A method in accordance with claim 13, wherein said polyhydroxylated analyte is glucose.

16. A method in accordance with claim 13, wherein said biocompatible polymer matrix comprises a polymer prepared from a reaction mixture of:

(a) a diisocyanate, said diisocyanate comprising about 50 mol% of the reactants in said mixture;

(b) a hydrophilic polymer which is a member selected from the group consisting of a hydrophilic polymer diol, a hydrophilic polymer diamine and combinations thereof;

(c) a siloxane polymer having amino, hydroxyl or carboxylic acid functional groups at the chain termini.

17. A method in accordance with claim 16, wherein said biocompatible polymer matrix further comprises an outer hydrogel coating, wherein said hydrogel is formed from a reaction mixture of:

(a) a diisocyanate, said diisocyanate comprising about 50 mol% of the reactants in said mixture;

(b) a hydrophilic polymer which is a member selected from the group consisting of a hydrophilic polymer diol, a hydrophilic polymer diamine and combinations thereof; and optionally;

(c) a chain extender,

said hydrogel having a water pickup of from about 120% to about 400% by weight.

18. A biosensor for measuring the amount of a polyhydroxylated analyte *in vivo*, said sensor comprising:

(a) an implantable amplification system of claim 1 comprising amplification components which produce a polyhydroxylated analyte signal upon interrogation by an optical source and a biocompatible polymer matrix, wherein said amplification components do not require resonance energy transfer for production of said signal and wherein said signal corresponds to said amount of said polyhydroxylated analyte; and

(b) an optical system comprising said optical source and a detector which detects said signal thereby measuring the *in vivo* amounts of said analyte.

19. A biosensor in accordance with claim 18, wherein said optical source is a LED.

20. A biosensor in accordance with claim 18, wherein said optical system further comprises at least one filter and wherein said optical source is a LED.

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